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Mar 12, 2002

US-PAT-NO: 6355468

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TITLE: Phenylalanine ammonia lyase polypeptide and polynucleotide sequences and methods of obtaining and using same

DATE-ISSUED: March 12, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Yoshida; Roberta K.	Buffalo Grove	IL		
Kootstra; Anna B.	Island Lake	IL		

US-CL-CURRENT: 435/232; 435/254.2, 536/23.2

CLAIMS:

What is claimed is:

1. An isolated and purified yeast phenylalanine ammonia lyase polypeptide comprising the sequence of SEQ ID NO:13.

2. An isolated and purified yeast phenylalanine ammonia lyase polypeptide, wherein said polypeptide is at least 90% identical with SEQ ID NO:13.

3. A composition that comprises a phenylalanine ammonia lyase polypeptide according to claim 1.

4. An isolated and purified yeast phenylalanine ammonia lyase polypeptide according to claim 1, wherein said polypeptide is encoded by a polynucleotide that comprises the sequence of SEQ ID NO:12.

5. An isolated and purified yeast phenylalanine ammonia lyase polypeptide according to claim 1, wherein said polypeptide is encoded by a polynucleotide that is at least 80% identical with SEQ ID NO:12.

6. An isolated and purified yeast phenylalanine ammonia lyase polypeptide according to claim 1, wherein said polypeptide is encoded by a polynucleotide that specifically hybridizes under high stringency conditions to the sequence of SEQ ID NO:12, and said high stringency conditions comprise hybridization in 50% formamide, 5.times. SSC, at 42.degree. C. overnight, and washing in 0.5.times. SSC and 0.1% SDS, at 50.degree. C.

7. An isolated and purified yeast phenylalanine ammonia lyase polypeptide according to claim 1, wherein said polypeptide is encoded by a polynucleotide

that is obtained from strain ATCC PTA-2224.

8. An isolated and purified yeast phenylalanine ammonia lyase polypeptide that comprises the sequence of SEQ ID NO:13 but is N-terminally truncated by the absence of one or more of amino acids 1 through 6 of SEQ ID NO:13.

9. An isolated and purified yeast phenylalanine ammonia lyase polypeptide that comprises the sequence of SEQ ID NO:13 but is C-terminally truncated by the absence of one or more of amino acids 715 through 720 of SEQ ID NO:13.

10. A composition that comprises a phenylalanine ammonia lyase polypeptide according to claim 2.

11. An isolated and purified yeast phenylalanine ammonia lyase polypeptide that is at least 90% identical with SEQ ID NO:13, wherein said polypeptide is encoded by a polynucleotide that comprises the sequence of SEQ ID NO:12.

12. An isolated and purified yeast phenylalanine ammonia lyase polypeptide that is at least 90% identical with SEQ ID NO:13, wherein said polypeptide is encoded by a polynucleotide that is at least 80% identical with SEQ ID NO:12.

13. An isolated and purified yeast phenylalanine ammonia lyase polypeptide that is at least 90% identical with SEQ ID NO:13, wherein said polypeptide is encoded by a polynucleotide that specifically hybridizes under high stringency conditions to the sequence of SEQ ID NO:12, and said high stringency conditions comprise hybridization is 50% formamide, 5.times. SSC, at 42.degree. C. Overnight, and washing in 0.5.times. SSC and 0.1% SDS, at 50.degree. C.

14. An isolated and purified yeast phenylalanine ammonia lyase polypeptide that is at least 90% identical with SEQ ID NO:13, wherein said polypeptide is encoded by a polynucleotide that is obtained from strain ATCC PTA-2224.

15. An isolated and purified yeast phenylalanine ammonia lyase polypeptide according to claim 2, wherein said polypeptide is N-terminally truncated by the absence of one or more of amino acids 1 through 6 of SEQ ID NO: 13.

16. An isolated and purified yeast phenylalanine ammonia lyase polypeptide according to claim 2, wherein said polypeptide is C-terminally truncated by the absence of one or more of amino acids 715 through 720 of SEQ ID NO: 13.

17. An isolated and purified yeast phenylalanine ammonia lyase polypeptide, wherein said polypeptide is at least 95% identical with SEQ ID NO:13.

18. An isolated and purified yeast phenylalanine ammonia lyase polypeptide, wherein said polypeptide is at least 98% identical with SEQ ID NO:13.

19. An isolated and purified yeast phenylalanine ammonia lyase polypeptide encoded by a polynucleotide that comprises the sequence of SEQ ID NO:12.

20. An isolated and purified yeast phenylalanine ammonia lyase polypeptide encoded by a polynucleotide that specifically hybridizes under high stringency conditions to the sequence of SEQ ID NO:12, and said high stringency conditions comprise hybridization in 50% formamide, 5.times. SSC, at 42.degree. C. overnight, and washing in 0.5.times.SSC and 0.1% SDS, at 50.degree. C.